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ABSTRACT

Twenty years ago, anyone proposing to help teachers with the problem of classroom discipline had few resources at hand. It was approximately at that time that Jacob Kounin began a series of investigations that have changed our way of talking and thinking about classroom discipline. He changed our focus from a sterile concern with exercising discipline to a productive concern with smooth classroom functioning. In doing so, Kounin identified a set of data-based concepts about classroom management and, through his investigations, became convinced of the usefulness of studying the classroom as an ecological entity rather than as an assemblage of individuals alone. Kounin identified four dimensions as correlating with a teacher's management success: (1) with-it-ness; (2) smoothness (of presentation); (3) momentum; and (4) group focus. These management techniques are always related to the setting and change accordingly. Also noted as being important was the continuity, insulation, and protectiveness on the teacher's part of the signal system. Kounin was also one of the first to make systematic use of videotape recording as a data source for the analysis of classroom behavior. (JMK)

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Monographs in Teaching and Learning

Classrooms: Individuals or Behavior Settings?

Lindsey Kotkin

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Classrooms: Individuals or Behavior Settings?

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Monographs in Teaching and Learning comprise series of monographs in a variety of disciplines. Each series is published on an irregular schedule by Indiana University School of Education. Articles are devoted to aspects of major current concern to educators in the respective fields and deal with theory, research, or practical application pertaining to all levels of practice. Monographs in the *General Series* address topics that are general in focus or that cut across disciplines.

Preface

Twenty years ago, anyone proposing to help teachers with the problem of classroom discipline had few resources at hand: some admonitions about firmness and consistency, principles of reinforcement that proved elusive to apply, conflicting recommendations about the use of punishment. It was not much of an arsenal. In the last analysis, one was tempted to fall back on the premise that "motivated students do not cause discipline problems." Of course, no one—at least not anyone who had attended school for twelve years—found *that* a credible guide.

It was approximately at that time that Jacob Kounin began a series of investigations that have changed our way of talking and thinking about classroom discipline. In a remarkably productive research career, he changed our focus from a sterile concern with exercising discipline to a productive concern with smooth classroom functioning. In doing so, he identified a set of data-based concepts about classroom management that are far more pragmatic than the ménage of derived principles and outright myths with which we had dealt in the past. He further stated these concepts in terms that are descriptive and understandable rather than pedantic and obscure. Through these studies, he became convinced of the usefulness of studying the classroom as an ecological entity rather than an assemblage of individuals alone. Finally, he was one of the first to make systematic use of videotape recording as a data source for the analysis of classroom behavior.

Professor Kounin's record of research and the considerable impact of his findings led to an invitation to deliver a Horizons of Knowledge lecture at Indiana University in November, 1982. The slightly edited content of that lecture is contained in the pages that follow. When Professor Kounin was invited, it was suggested that he speak on a topic of his own choosing. His history as a researcher suggested several themes including a perspective on the research on classroom behavior or a perspective on his own research. Wisely enough, he chose to address the latter; the result is a valuable personal account of a respected researcher.

David H. Gliessman
Editor

It has always been my opinion that reviews of fields of inquiry or even of single books reveal more about the reviewer than about what is being reviewed. Reviews are what psychologists might call "projective techniques," since what the reviewer says really is a projection of his inclinations, attitudes, personality, and other characteristics, rather than a presentation of the reality. There are two qualities that produce the environment for a projective technique. One is a field that is highly differentiated: it has a lot of parts to it, it is full of "stuff." Because there is a lot of stuff there to see, the person who reports about it is subject to what is called "perceptual selectivity": he is going to select those things that fit with what he is concerned about. The other quality of a projective technique is that it is ambiguous and produces what is called perceptual distortion. To react to an ambiguous field requires telling something about that field. The field doesn't tell you what is there, so you have to tell what is there by distorting, stretching, bending, exaggerating, filling in, and so on.

I propose that reviewing the last twenty or thirty years of research on classroom behavior fits the qualities of projective techniques. In the first place, there is an awful lot of "stuff," highly differentiated, more journals and more articles and more papers, and so on. And an awful lot of ambiguity. The twenty years of high differentiation and high ambiguity just invite a total projective technique. I am not going to review that whole twenty years now, and will not even try to look at the future. I'll be honest and lazy and not pretend to cover the field. I'll stick to what I have done, what led to what I've done, how my ideas have changed over time—in other words, how I found myself being wrong in many instances. I am going to present a brief, selected and biased semi-autobiography of part of my professional life.

Individuals or Settings?

What I would like to consider is whether we are going to deal with individuals or settings. If there might be any organizing theme it would be this: in running classrooms and schools, are we to focus on the study of individuals or are we to focus on the setting? When I talk about classroom management, I am going to be quite simple and nonambitious. I am not going to talk about the development of personality or character or even the amount of learning or attitude change. I am simply going to talk about the surface management of behavior. How do you get kids in the classroom situation to do what they are supposed to be doing and keep them from disturbing other children? That is surface behavior management. To me, a necessary but not sufficient requirement for a successful teacher is to get kids involved in the task and keep them from becoming deviant. "Individuals" refers to the occupants of classrooms, both children and teacher, and the characteristics you care to study: whether they are sex, or age, or IQ, or attitudes, or personality, or the number of courses taken in education, or scores on personality tests. These would be properties of the occupants. If you look through a traditional educational psychology text, this is what 99% of the text would be about: learning, attitudes, and development of individual characteristics.

Characteristics of settings. "Setting" requires a more complex definition. My definition of "setting" is much more restrictive than the usual definition of "environment." I am not going to talk about all environmental influences upon behavior in a classroom whether those influences are fires, or other kids, or social atmosphere, or what have you. Setting, rather, is a relatively stable, definable part of the environment. I'll follow the Kansas group's notion of setting as they express it in their psychological ecology: the relationship of persons to their environment. A setting exists, it's real, it's there independent of who is in it. This lecture hall is here and it is going to be here tomorrow. And the occupants, regardless of who the occupants are, are going to be doing pretty much the same thing you are doing and I am doing. So a setting has an action structure. Certain things go on, as with the rules of a game. In a baseball game, a pitcher pitches and a catcher catches and the batter bats and the fielder fields. This is what goes on in a baseball game in terms of the rules of the game, and that is independent of the quality of the players. They can be good players or bad players but in a baseball game they'll be playing baseball. That is one characteristic of a setting. In classrooms, there are geometry lessons, reading groups, and the action structures that go on. Whether the teacher is talking or explaining or directing, or whether the kids are writing or responding or painting in a book: that is the program.

A second characteristic or requirement of the setting is a physical one: a site and facilities. There has to be a ball diamond, there have to be balls, there have to be bats, and there have to be places that are designated as bases. And the classroom has to have its books and its desks and its papers and pencils and it has to have a place in which those things are located.

Third, in most settings there is a certain fit between the action structure and the physical characteristics. Chairs must be placed in a certain way. If the teacher is going to talk and raise questions and call on reciters, children have to be seated so that they can see and hear the teacher. If it is a language lab with carrels, the chairs must face the walls. There has to be a fit between the setting properties, the physical properties, and the action structure that takes place in that setting so that the setting will work.

As a fourth characteristic, a setting has certain spatial and temporal boundaries. For example, a reading group is seated in a semicircle around the teacher between 9:15 and 9:30 and the "robins" are at their arithmetic seat work, in their places and in their temporal boundaries. This lecture hall is a setting; there is a certain action structure that takes place here. There is someone who is talking or explaining or lecturing and there are "monitors" who are facing that person and listening (as far as overt behavior is concerned—I am not talking about the quality of the lecture). This lecture hall is going to be here another time and other participants who come in here are going to behave pretty much the same way you are behaving. It may be a chemistry professor with chemistry students but they will be doing the same thing. So the setting is relatively independent of the content or occupants.

Research Perspective

Now to the substance of my research, an autobiography in learning. Let me note that my Ph.D. was obtained at the University of Iowa; that was in the 1930s. The University at that time was very much theory/science oriented. The intellectual climate was lively. There was Lewin and there was Spence. They were attempting to evolve an encompassing theory of behavior. The model of scientific inquiry was physics in which a good scientific experiment consists of a clean rigorous hypothesis that is then subject to controlled experimental studies. I was also working as a so-called clinical child psychologist. So my experience was theoretical, tough, experimental science, and work with individual children.

The 1930s also saw the first major start in introducing child development concepts explicitly into the college of education. I was a newcomer on the low rung of the academic scale, so I had an assignment that required teaching undergraduate educational psychology courses. Most of those enrolled were student teachers or those expecting to be student teachers. They were observing in schools and I was part of their required teacher training. You know what the setting was; it was a classroom with blackboard and somebody talking in front of it and people obediently taking notes. When there wasn't total apathy, certain questions were raised, mostly about the handling of individual children. What do you do with a kid who is always late? What do you do with a kid who is always bothering other kids? And I, in my scientific fashion, would say, "Well, we can't offer a remedy until we make a diagnosis, so you really have to understand the child before you can treat him intelligently." And this gets into the discussion of aptitude tests and intelligence tests and personality tests and home visits and so on and so forth.

Before the semester was over there was a mutual atmosphere of hostility. The students were angry at me because I didn't help them with their problems and I was angry at them because they didn't seem to be very accepting of my lofty abstractions. Somehow this hostility was also accompanied by my feeling some self-doubt and guilt about whether all of this was really worthwhile to the students or to beginning teachers. I began to think that maybe I should go to schools and learn something about them. But I am a night man (schools for some pathological reason have this temporal boundary that starts before noon, and I can't quite fit that in with my biorhythms) so I did not go. So I was left living with my guilt and hostility.

At Wayne State University, I was teaching a course in mental hygiene where it is a little more justifiable to talk about understanding of individual children. I was delivering my usual lecture and some student in the back of the room was reading a newspaper. And what do you think I did? I did not give tests or visit the home or give them Rorschach tests and so forth. I got mad. I don't remember what I said but I bawled him out, and it worked. He stopped reading the newspaper; at least he didn't keep it open. But I couldn't help but notice that it worked not only to get him to stop that misbehavior but that the other students seemed to be affected. Suddenly whispering stopped and looking out of the window

stopped and people froze against their desks and took out their pencils. And I said to myself, "Well, this is what students are asking me. What do you do to handle these things?"

Early investigations. So I was able to mobilize my guilt and hostility along with my research curiosity and write up a research project on the so-called "ripple effect" of discipline. When you try to desist (and I am going to use the term "desist" now, not "discipline"; desist means "stop it"), you are trying to stop someone's misbehavior. But how does it affect other people or onlookers? I wrote this up and sent it to the National Institute of Health as a mental health problem. They granted me some money for seven years to study this effect. I did experiments with college students; instead of depending on "accidents," I deliberately planted someone who misbehaved, for example, who came late. We gave premeasures to the students. A graduate student came in and said he needed some material for his dissertation on the formation of first impressions. Would the students rate certain first impressions of their professor and some other professor and so on? During the next session, a late-coming student was reprimanded punitively, was told angrily that "this lateness can't but affect your grade since I am lecturing on material that is not in the text." Then the graduate student came in again and administered the first-impression questionnaires supposedly to establish their degree of reliability.

In another case, we had another kind of variable in which the late-coming student was treated supportively. He was told, "I am sorry you are late and you must have missed something and I'll be glad to help you make up this time." And we produced changes. There were very signficant changes in attitude towards the material the instructor was talking about and judgments of the instructor, depending on whether he treated someone punitively or supportively. And this judgment was on the part of onlookers, not simply on the part of the deviant in question. Also, out of curiosity, after the students were through, we asked them to put down what they thought of when the professor reprimanded that student for coming late. Ninety-six percent of the students reported that they were surprised; they did not expect university professors to bawl out students for coming late. They guessed that he must have gotten into a traffic jam or had a fight with his wife that morning. Both of which are realistic perceptions, I might add.

Now the question is, what were we studying? Were we studying differences in desist techniques or were we studying the effects of surprise? Or the effects on perceptions of guys who have gotten in traffic jams and gotten in fights with their wives? And how does one contaminate the other? So the learning here was: if you are going to experiment with human beings and with variables of some sort, you had better use variables that are ecologically feasible. You had better use variables that do not produce surprise, that aren't strange, that aren't unusual, that aren't unexpected, or you will not know what you have.

We then went to studies where desist techniques are *expected*. We sent observers into kindergartens. The first week of kindergarten, we trained 60 observers to take relatively objective and complete reports of desist events, then follow *another* child to see whether that child increased in his task involvement,

whether he behaved better or behaved *worse* and so on. Describing exact properties of the desist technique, we found certain differences. We found, for example, that when a teacher is very clear, other kids behave better. When she is firm, other kids who are deviancy-oriented do better. When she is punitive and angry, they behave neither better nor worse; they simply behave in an upset manner; they showed signs of anxiety, they sucked their thumbs more or they watched the teacher apprehensively.

We tried the same thing in camp but got no results. It didn't make any difference what the camp counselor did to a misbehaving kid during clean up or during rest period when there is quite a bit of deviancy. Then we did a high school study in which we interviewed high schoolers in their first week of school. We used students in a high motivation class and in a low motivation class to see whether that made any difference. We also asked students whether they liked the teacher or not, whether they would recommend the teacher to a friend or not. Each interview took about an hour to get very specific and descriptive information about how a teacher handled a misbehaving kid and what effect it had on the onlooker. We found again that the desist technique, as in camp, made no difference whatsoever. It made no difference whether the teacher used humor or was firm or was clear, the students tended to behave pretty much the same way. Only one thing affected their judgments: if they had a high motivation to learn the subject, then regardless of what the teacher did to stop misbehavior, they tended to pay more attention to their work. If they liked the teacher, they tended to judge the action as fair but it didn't affect their orientation to work. If they disliked the teacher, they tended to judge it as unfair.

By this time seven years of research had passed. What did we learn? We learned that, except for the first day of kindergarten, it made no difference how the teacher handled a misbehaving child, in terms of affecting other kids. From the high school study, we learned that there are certain contextual, prevailing variables that affect certain related outcomes. Motivation to learn affects test-related outcomes such as attention to task. Liking the teacher goes along with balance theory. If you like the teacher, you tend to see her doing things that are fair; if you dislike her, you tend to see her doing things as unfair, again regardless of what she does. By this time our money ran out and I was still curious. I still didn't have any answers as to how to stop or to prevent misbehavior.

Later investigations. We got another grant for seven years to study the management of emotionally disturbed children in regular classrooms. We went to schools and found the kids who were seeing psychiatrists and were diagnosed as emotionally disturbed by visiting teachers and school social workers. We followed them around school and took notes. At the end, we had reams of notes. I couldn't find solid data that would permit making even a simple table of findings. What happened? It so happens that even trained observers looking at a complex thing like a classroom with thirty or more children, with a rapid rate of interaction between teacher and children and with different things going on in different parts of the classroom, tend to be very selective about what they see. They tend to notice those things that are intense—someone yelling, they'll notice that—especially if it is intense misbehavior like throwing erasers or kicking

someone. So we will pick those things in the classroom that are intense, that are unusual, that fit our preconceptions, to the neglect of observing what else is happening. What about the kids who aren't throwing erasers around?

So we need an observation technique that is not only objective, that reports the truth, but also is complete and will report the *whole* truth. Human observers simply cannot do that. So we videotaped eighty classrooms, each containing one or more emotionally disturbed children. But the camera can lie, too. If you move the camera around to something that is "true" but neglect to see the other things, you are not giving a complete picture. Those who watch videotaped news will realize this whether the news is about some ball game or about a political convention. What is shown is true in part, but it may give the wrong impression because it is selective and not complete. In our study, the camera was placed in one spot and recorded as much as possible of the room without moving. It started from the moment the class started until it ended. Another camera was on a "pan tilt" so if some of the classroom activity was not in the main picture, it was superimposed upon the tape. The teacher wore a wireless microphone that recorded all he said, and the operators were out in a truck recording by remote control.

What are we going to look for? The dependent variable is very clear: a kid behaving appropriately, either reading in the reading group or doing arithmetic in an arithmetic lesson and so on. Or a child was misbehaving. Every six seconds we categorized the behavior of the emotionally disturbed child and the other children. So we now had scores for the emotionally disturbed child: the percentage of misbehavior, how much is mild, how much is serious. We also scored for the amount of misbehavior contagion: when he misbehaves, how much it spreads to the other kids and how many other kids "get in on it." We also recorded how much task involvement and how much misbehavior there was for the other children in a classroom. I might point out that in the fifty all-day sessions and thirty half-day sessions, the task involvement for the most successful teacher was one who kept children doing what they were supposed to be doing 98.7% of the time. There were four instances of mild deviancy in the day, three of which were ignored and stopped spontaneously within 5 seconds. The least successful classroom had task involvement 25% of the time. The rest of the time, the kids were either misbehaving or just doing nothing. I don't know the precise amount of misbehavior, but the teacher did desist some misbehavior 986 times in one day.

Now the question is: what leads to these differences? What can we learn that will predict to the degree of task involvement or to the degree of misbehavior? The first thing we looked at was desist techniques. We had a couple of thousand of those. And we could ask for *degrees* of success. The teacher tells John to stop poking Mary and he stops immediately. He not only stops but gets back to work. We call that very successful. If he stopped but sat and didn't get back to work, we saw it as partly successful. If he openly defied the teacher and kept punching his neighbor, we called it a failure. We wanted to know if the degree of success or failure was related to the technique the teacher used. We had something like thirty different techniques, such as clarity, firmness and so on. Nothing made a difference. I stress that fact because people still don't

believe it. They notice misbehavior and they notice teachers handling it and they naturally try to see a causal connection between the two. There was no single dimension of desist techniques that predicted to the degree of success or failure. What's more, if we took a teacher's typical desist technique (how much clarity in general, how much firmness in general, how much anti-child treatment in general, how much specification of what to do or what not to do in general) against the overall rate of deviancy in the classroom, it still did not predict the *amount* of misbehavior or appropriate behavior.

Organizing Concepts

So we finally had to say we were asking the wrong question. Classroom management is unrelated to how you handle misbehavior and how you handle misbehavior is unrelated to the amount of misbehavior that you get. There is one exception. For example, two boys are in the back of the class during an arithmetic lesson. One of them grabs the other's paper and the second one grabs his paper. Then the first one pokes the second in the shoulder jokingly and the other one pokes the first, then they chase each other around the table, laughing; then one pulls the shirt off the other and the second pulls *his* shirt off. Then he unzips the second's fly and *he* unzip the first guy's fly and the teacher says, "Boys, stop that!" We said that was too late. So it wasn't how she said "stop it" or whether she walked closer or didn't walk closer. Or whether she threatened or didn't threaten. It was whether she demonstrated to the class that she knew what was going on, that she had "eyes in the back of her head." It is not whether she came in right away but whether she came in before something spread or became more serious. And we gave that the technical term of *withitness*. That is the only thing that correlated with management success.

But even more important were three other dimensions. One we called *smoothness*. Does the teacher move through the activity with smoothness? Or does he start something and then drop it for unknown reasons, or "dangle"? Or does he "flip-flop"? For example, does he say "OK, put your spelling books away . . . and take out your arithmetic." Then: "How many got all their spelling words right?" This is a directional flip-flop. The movement isn't flowing in a smooth way but is going back and forth, dangling, leaving a lot of empty time.

The other aspect of movement management was *momentum:* things moving without a lot of lags or slow downs or dragging or overexplaining. We called the latter the "yack quotient": overexplaining something the children already knew. We also identified a "nag quotient" which was nagging about something kids already knew: "Now, you're not supposed to talk in school. You're not supposed to make a lot of noise out here because you are bothering Jimmy; and if you are bothering Jimmy, he can't learn, can he? What do you come to school for? You come to school to learn, don't you?" Well, kids know that. Anytime a parent or teacher dwells on something that a kid knows already, constituted our definition of a nag. What is the effect of the nag quotient? It simply slows down the arithmetic lesson. Another example is moving a reading group one at a time rather than as a single group. "Johnny come up here" and

then "Mary come up here," then "Susie come up here," instead of "The Brownies come up to the reading group." The successful teacher is one who keeps the activity moving and keeps it moving with smoothness.

A third dimension involves concentrating upon the group and avoiding immersion in single children during recitation settings. We called this *group focus*. There are two aspects of group focus: group alerting and accountability. If I am tutoring a student in a one-to-one relationship, I don't have too many behavior problems. And why not? Because in a one-to-one relationship, the student knows that she is going to be called on; she is therefore on the *alert*. She also knows that I know how well she is performing here and now, not what she did on some achievement test last week, but how well she is performing here and now. She is *accountable* for her performance and she knows that I know about it. A successful teacher basically deals with a class of 24 or 30 or 35 or 40 as though they were one unit. She deals with it as a group and she does not get immersed in single children. We found that the degree of immersion in single children as compared to the focus on the total group differentiates between the successful and unsuccessful teacher at quite a significant level.

The effect of setting. These dimensions apply to recitation where the action structure is one in which the teacher is "calling on" and kids are reciting. Group focus, momentum, smoothness do not apply to seat work where the action structure is one in which the child is doing his own work independent of the teacher's actions. For that kind of a subsetting, group focus is irrelevant, momentum is irrelevant, but "programming" work-related varieties *is* relevant. So even within the same classroom and within the same population of occupants, the management techniques that go into making a successful recitation setting are not the same as the management techniques that go to make up a successful seat-work setting. So technique and setting have to be related. Techniques that are relevant in one kind of classroom setting are not necessarily relevant in another kind of setting even though the characteristics of both teachers and pupils are the same.

At this point, we have only a correlational study; we have notions about seat work versus recitation and we have some kinds of correlations. So in our next project with preschoolers, we attempted to secure more data about activity settings. We have at Wayne State a preschool that is rather unique in that it is heterogeneous in respect to its occupants. In this particular school, the children range in age from two to five years all in the same morning or afternoon session. They have black and white children; they have high socioeconomic and low socioeconomic groups; some of the kids come from parents who are on Aid to Dependent Children and some come from parents who are professionals earning $70,000 or more per year. The sessions included both boys and girls. One aspect of this school's program was that children were taken in groups of three to eight to a little room for formal lessons for twenty minutes each morning or each afternoon. These lessons then were videotaped with remote control. We continued this study for two years Each morning and each afternoon session happened to have two regular certified teachers and three student teachers, so there were five teachers for the morning group and five for the afternoon group. There were three quarters in the year so there were

three different groups of student teachers for the morning and three different groups of student teachers for the afternoon. The following year we had the same pattern. In total, we videotaped 598 formal lesson settings as taught by 36 different teachers.

Again our dependent variable was very clear: are the kids involved in the task? Are they doing what they are supposed to be doing, whether it is listening to a story, or making a collage out of squares, or making a mural, or pasting, or doing a color concept lesson, or what have you? We scored each lesson for task-involvement and for deviancy.

It is interesting how obsessed we are with focusing on individual children. I remember going over those videotapes with Paul Gump, who came in to help me. We were trying to make some kind of judgment as to what produces misbehavior in these lessons. We took notes, we went over these notes, and we reverted to our clinical psychology selves: "Wow! That kid's misbehaving because the teacher took his blocks away over there; and she reprimanded him for not taking his shoes off before he came in; and he is getting revenge on her by grabbing her book when she is reading that story" and so on and so forth. We tried to score these on the basis of the treatment of the child as it related to his deviance or task. It didn't work. Now we may wonder why it is that, in spite of all these learnings, we see an individual child and we try to see something about that child that produced the misbehavior. Once Paul said, "You know, what does it is the skin." He said, "People have skin and the skin keeps them together as a natural human and we see a single unit. If we didn't have skin, we probably wouldn't see people as single units." We simply don't have "naturally occurring" conceptual-perceptual units for groups or for activity settings.

Signal systems. Finally, we arrived at the notion of the setting as having within its action structure and prop structure a certain *signal system*. Let me elaborate: I go to symphonies a lot and I have been to symphonies in various cities and various countries. I find that regardless of the program, or the conductor, or the population, the people at symphony concerts behave pretty much the same in all cities and in all countries. They come into the hallway or lobby and they are moving around and smoking cigarettes, talking and so forth. That's the behavior you expect in that setting. Then the gong rings, or lights dim, and they start moving into the concert hall. Then they begin to sit down but they are still whispering and so on. Then some people carrying different instruments come in and sit down. And then the lights dim and the volume of talking begins to go down. Then some fellow comes in carrying a violin and everybody applauds. Then the concert master strikes an A note and all the instruments strike an A note, and practically all the talking stops. Then some other fellow comes in carrying a stick and people applaud and he bows towards those people and they applaud. Then he turns around and faces those with the instruments and he swings his stick and those people emit sounds. Now everybody is quiet, listening to those sounds. There has been a series of signals and those signals evoked or supported or coerced certain behaviors on the part of the occupants and, I might point out, regardless of whether the occupants do or do not like the music or whether they are or are not interested in symphony. There are

many times when I and others disliked the music we were hearing but still sat and behaved appropriately to the setting.

Now in preschool lessons, it began to occur to us that there was most attention and work involvement and least deviancy when the teacher was demonstrating something or reading a story. We came to the notion that when the teacher reads a story there is a certain signal system that is continuous and free of lags: line one leads to line two, which leads to line three; page one leads to page two; page two leads to page three. That is quite a continuous signal system that is emitted. Signals are being emitted by a single source; we should therefore expect smoothness, momentum, continuity and freedom from lags. Regardless of who the kids were and regardless of who the teachers were, reading lessons and demonstration lessons were high in task involvement and we theorized that it was because of the lag-free continuity of the signal system due to the constant performance of the emitter.

But when we scored, we found that individual construction lessons (lessons in which each child was given material and was to make something) were even higher in task involvement and lower in deviancy. That is, the child may be given magazines, scissors, paste and a big piece of cardboard and instructed to cut out desserts and make a collage of desserts; that led to high task involvement regardless of *what* students were constructing. What kind of signal system do you have? You have a signal system in which the action of the child on his own "props" signals the next move. Cutting out the picture signals the child to paste; the presence of paste, the paper and the magazine with further pictures signals him to keep going. There is a continuous signal system, not because of an external performer but because of the nature of the child's performance that leads to continuous progress and the presence of props that leads to a signal of doing more.

This sequence of signals is even better than teacher signals because, in addition to the continuity, it is also a *protected, insulated* system in which this child's performance and source of signals is independent of the next child's performance. That is not present in reading groups because if a child is in a reading group and the teacher is reading a story and the child reaches over and grabs the teacher's book and stops the continuity, it also stops the signal emissions for the other kids. One might argue that the construction lessons have high task-involvement and low deviancy because preschoolers like to make things and use their hands. But if you have a group of four or five or six children who are to cut out things and make a mural of stars and moons and so on on the big board, there will be a lot of misbehavior. They are making things; they are doing things with their own hands. Why the misbehavior? Because the signals come from other kids as well as from their own actions. What results is not an insulated signal system. Even though the action structure is the same, pasting and cutting, it is not as insulated as the individual construction lesson. Therefore, there is more potential intrusion on the part of other kids and there is, at least potentially, a relatively high contagion of misbehavior.

We begin to see lessons in classrooms as behavior settings with their action structure and their props, but we also begin to see these settings as having

signal systems that are built into them; these signal systems have certain properties. One is the degree of continuity which will be greater if a good emitter such as a teacher is doing it but will be relatively poor if other children are doing it. Recitations, for example, in which there are multiple emitters of signals with a lot of potential lags are generally low task involvement lessons. This is because of the discontinuity of the signal systems due to their vulnerability to poor performers getting into the system.

When we began to look at lessons not in terms of their content or their subject matter but in terms of the continuity and insulation and protectiveness of the signal system, we were able to predict the amount of misbehavior and the degree of task involvement. (A specific study of every incident of deviancy in preschool validated the finding that the desist technique makes no difference. The average duration of misbehavior was no greater when a teacher desisted than when she ignored.) What determined the duration of misbehavior and the amount of contagion of misbehavior was the presence of lags or discontinuity in the signal system. The amount of misbehavior contagion was least in insulated systems.

Summary

To summarize our learning, the experimental method as a way of getting understanding is quite limited. The variables have to be ecologically relevant. I did not mention another study we did with the high school in which we were trying to study low motivation to learn versus high motivation to learn in an attempt to replicate our interview study. We could not get the low motivation group to have low motivation to learn in this experiment. When we had them rate how much they were *trying* to learn whatever we were teaching in the experimental classroom, they all said they were trying to learn a lot. Instead of letting it go at that, we called those students in for interviews. We asked, "How come? We told you not to try to learn this. You were supposed to learn Greece not Turkey." They said, "Well, you paid us to come down and we figured we had better do the best we can."

So there is the psychology of the subject: if you are a good subject, you do certain things that you do not do in the real world. There are other findings in the same direction with adults showing that there is a certain social psychology inherent in being a subject in an experiment; it induces certain kinds of behavior that would not be evident in the real world. So our first learning was the limitation of the experimental method. The experiment itself is a behavior setting with its locus, props, and modes of behavior for both experimenter and subject.

Second, we learned the importance of gathering data in a natural setting. This is not simply a matter of objectivity or reliability but a matter of completeness. Researchers have coefficients of reliability, but they don't have coefficients of completeness. Many of the answers to our questions came from re-searching, from looking again and again at the original material before we arrived at some of the dimensions of signal systems or withitness or group focus and so on. They came after we had rechecked many other individual-oriented hypotheses.

Third, we learned that there are no overall techniques that apply to all classroom settings. For example, group focus applies to recitation settings but not to individual seat work settings; work-related variety applies to seat work settings but not to recitation. Talking, listening, or otherwise focusing on one child does not disrupt insulated individual construction lessons, but listening to one child recite for more than ten seconds begins to disrupt a story or demonstration lesson.

Fourth, as far as classroom management is concerned, we learned that it is almost a misdirection to train teachers, especially beginning teachers, to focus on the understanding of individual children. It is almost counter-productive. There is much more power and much more effectiveness in diagnosing the nature of the activities and the props that go with those activities, in other words, the setting emphasis and the demand of the setting upon what it is that one has to do to keep that setting going.

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